ER Site No. 50: Old Centrifuge Site (East of TA-II)

ADS: 1309
Operable Unit: Tijeras Arroyo

Primary Contact: Dick Fate
Office Phone: 284-2568

Site History

ER Site 50 covers 0.39 acres on federally owned land controlled by the U.S. Department of Energy (DOE). The centrifuge at ER Site 50 was used from 1952 through 1956 to test weapons components at high rates of centrifugal acceleration. The site is located about 300 feet east of Technical Area (TA) II on the northern rim of the Tijeras Arroyo. The site is underlain by the shallow water-bearing zone and the regional aquifer. The depth to the shallow zone is approximately 330 feet below ground surface (bgs). The depth to the regional aquifer is approximately 500 feet bgs. The nearest water-supply well, KAFB-11, is located approximately 0.7 miles east of ER Site 50. The nearest downgradient water-supply well is KAFB-1, which is located approximately 1.4 miles northwest of the site.

The ER Site 50 centrifuge was used from 1952 through 1956 for the outdoor testing of arming, fuzing, and firing components at high rates of centrifugal acceleration. Solid-fuel rocket motors propelled the centrifuge. ER Site 50 presently consists of the circular berm, a concrete slab, the centrifuge boom, and a hoisting crane. No structure has ever covered the centrifuge. During the tests, the centrifuge boom held an experimental apparatus 'test jig' on one end and rocket motors on the other end to provide rapid acceleration. During some tests, the test jigs contained depleted uranium (DU) and high explosive (HE) components. The most commonly used HE was RDX (1,3,5-Trinitrobenzene), also known as Cyclonite. However, none of the HE components were fired (expended) during the tests.

No debris was disposed of at ER Site 50. A review of aerial photography, geophysical surveys, and excavation work confirm that the weapons debris from ER Site 50 was buried in a nearby gully at ER Site 228A. All of the ER Site 228A debris, both weapons and construction debris, was removed from ER Site 228A in 1998 and 1999. The weapon debris consisted mostly of DU fragments, rubber pads, aluminum pieces, and concrete spheres. The construction debris consisted mostly of scrap metal and concrete rubble.

ER Site 50 was first listed as a potential release site on the basis of the Comprehensive Environmental Assessment and Response Program (CEARP) interviews in 1985. As a follow-up, CEARP Phase II work was performed. In 1989, surface-soil samples were collected to a depth of 0.5 feet bgs at 14 locations around the centrifuge. The samples were analyzed by an off-site laboratory for Target Analyte List (TAL) metals, uranium, pesticides, herbicides, Polychlorinated Byphenyls (PCBs), Semi-Volatile Organic Compounds (SVOCs), and Trinitrotoluene (TNT). The analytical results did not indicate any soil contamination in the vicinity of the centrifuge. Both the TAL metals and uranium results were within background levels. No pesticides, herbicides, PCBs, SVOCs, or TNT were detected.

Three investigations were conducted in 1994. A visual survey for Unexploded Ordinance / High Explosive (UXO/HE) did not identify any UXO/HE material at ER Site 50. A radiation survey also was conducted; no radioactive anomalies were detected. A photographic review was conducted using over 40 years of historical aerial photography. No spills or burials were identified in the photographs.

In 1998, a comprehensive records search identified a significant amount of process knowledge for ER Site 50 including over a hundred classified memoranda. Later that year, geophysical surveys were conducted between the centrifuge and the gully. No debris was detected near the centrifuge.

Two phases of confirmatory sampling were conducted at ER Site 50. A total of 12 soil samples were collected. In 1994, four locations were sampled at the open side of the centrifuge berm. Soil samples were collected from two depth ranges (0-0.5 and 0.5-3 feet bgs) and analyzed off-site for Resource Conservation and Recovery Act (RCRA) metals, beryllium, HE compounds, and radionuclides. In 1999, four additional samples were collected from 0-0.5 feet bgs at scattered locations around the centrifuge berm; the samples were analyzed on-site for gamma-emitting radionuclides. Four of the eight RCRA metals were within background. Beryllium also was below background. However, the maximum concentrations of arsenic, barium, cadmium, and lead were slightly above background. No HE compounds were detected. The radionuclide of most concern, uranium-238, was also detected below the associated background screening value. Except for tritium, the other radionuclides were below their associated background screening values. In December 1999, a risk assessment was prepared for the Notice of Deficiency (NOD) response.

Constituents of Concern

The COCs for ER Site 50 are HE compounds, RCRA metals, and DU.

Current Hazards

No chemical or radioactive hazards are present at ER Site 50.

Current Status of Work

In June 1995, a No Further Action (NFA) proposal for ER Site 50 was submitted to New Mexico Environment Department (NMED). Responses to Notice of Deficieny (NOD) comments were submitted in October 1996 and December 1999. Site 50 was accepted for No Further Action in March 2000. The NFA was approved by NMED on September 15, 2000 after completing the public review and permit modification process.

Future Work Planned

No future work is planned for ER Site 50.

Waste Volume Estimated/Generated

No waste was disposed of or generated at ER Site 50.

Information for ER Site 50 was last updated Jun 27, 2001.